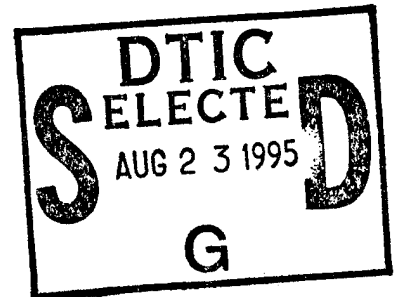


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The Trail To Victory: North Vietnam's Operational Success Through Logistics

by

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A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

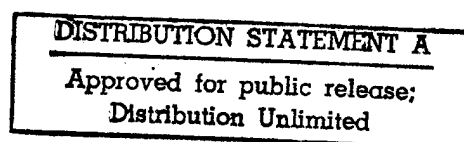
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Abstract of

THE TRAIL TO VICTORY:
NORTH VIETNAM'S OPERATIONAL SUCCESS THROUGH LOGISTICS

Logistics was the key to operational success in the "Peoples' War" to reunify Vietnam. This revolutionary war, initiated by Ho Chi Minh, President, of the Democratic Republic of Vietnam, was dependent on a secure Line of Communication (LOC) to infiltrate manpower and materiel into South Vietnam. The Ho Chi Minh Trail was transformed from a primitive network of jungle paths to a mature infrastructure which became the primary LOC as the conflict evolved from an insurgency to a conventional war. Logistics was the key to North Vietnam's operational success. It drove the operational tempo of the war and the Trail was the logistics lifeline supporting the revolution. It enabled North Vietnam to impose its will whenever and wherever they chose, taking the battle deep into South Vietnam, and providing base areas and sanctuaries. This logistical infrastructure was the foundation supporting the armed struggle, and as such, the Center of Gravity. It was the hub of all power for the military effort, in essence, it was the trail to victory.

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The Trail to Victory: North Vietnam's Operational Success Through Logistics

"The more I see of war, the more I realize how it all depends on **administration and transportation**. It takes little skill or imagination to see where you would like an army to be and when; it takes much more knowledge and hard work to know where you can place your forces and whether you can maintain them there. A real knowledge of **supply and movement** factors must be the basis of every leader's plan; only then can he know how and when to take risks with those factors, and battles are won only by taking risks." ¹

In the quest for national reunification, North Vietnam's leaders, political and military, clearly recognized the decisive nature of logistics in revolutionary warfare. Demonstrating mastery of supply and movement, North Vietnam (NVN) transformed a primitive transportation network of overgrown jungle trails, footpaths and riverways into a robust infrastructure. This logistical network, later known as the Ho Chi Minh Trail, provided the means to infiltrate manpower and materiel into South Vietnam via a secure Line of Communication (LOC).² It also provided rear area bases with the dual purpose of both a staging area and sanctuary. Logistics was their key to operational success - the decisive factor in waging and winning the revolution for a reunified Vietnam. The Ho Chi Minh Trail was the trail to victory.

"The Peoples' War"

Following the first Indochina War, the cease-fire agreement divided Vietnam at the 17th parallel. The Communist forces established the Democratic Republic of Vietnam (DRV), north of the 17th parallel with Ho Chi Minh as its President. The Republic of Vietnam (South Vietnam) was established south of the demarcation line. With the signing of the Geneva Agreement in 1954, most of the communist troops (Viet Minh) were regrouped and evacuated to the DRV (North Vietnam). However, Ho Chi Minh left behind 10,000 men and caches of arms and equipment in hideouts throughout South Vietnam against the possibility of losing the 1956 referendum.³ When South Vietnam refused to hold elections in 1956, the North commenced a political struggle to reunite Vietnam. In January 1959, North Vietnam's leadership changed its strategy - authorizing limited "armed struggle" in the south as a way to intensify the "political

struggle."⁴ This was, in effect, the warning order moving toward the "Peoples' War" which Hanoi announced in May 1959.

Initially the war to reunify the two Vietnams involved only the regrouped Viet Minh, now known as Viet Cong (VC)⁵, who were infiltrated into South Vietnam. The North Vietnamese Army (NVA) were in a supporting role, providing training to the VC main force units fighting in South Vietnam, and supporting the creation of the logistics infrastructure and LOC - the Ho Chi Minh Trail. The NVA's involvement changed in 1965 when they were infiltrated into the south to engage in combat with the VC main force units. This was in response to the introduction of U.S. ground combat forces and the subsequent escalation of the conflict.⁶

Logistics in Revolutionary War

Characteristically, revolutionary wars (insurgencies) lack the traditional "logistics tail."⁷ As a consequence, operations must be of limited duration with supplies in place prior to the commencement of hostilities. This is the inverse sequence of conventional operations in that the direction of logistical flow is opposite that of the line of advance.⁸ While appearing as a combat limiter, this can work to the insurgent's advantage since support is in place preceding the battle and the "tooth to tail" ratio is reduced.⁹

Operational logistics can decide what is or is not possible.¹⁰ It is the art of the possible, in essence drawing the line the tactician cannot cross without courting disaster on the battlefield. This was particularly true in the Vietnam War where North Vietnam's logistics system drove the operational tempo of the war. It enabled the insurgent to choose the time, place, and duration of the battle; either engaging or withdrawing as appropriate via an established LOC - the Ho Chi Minh Trail. The Trail was the logistics lifeline supporting the revolution. It fed the revolution with timely and adequate quantities of manpower and materiel while also providing sanctuary and a secure rear area in which to rearm, train, and regroup prior to the next battle. It enabled North Vietnam to attack whenever and wherever they chose, taking the battle deep into South Vietnam. This logistical infrastructure was the foundation supporting the revolution - the Center of Gravity, the source of all power. In essence, it was the trail to victory.

Role of Logistics in North Vietnam's Military

North Vietnam's Constitution of 1960 established the military's "true primary mission" as providing the government with the means to annex South Vietnam by armed force.¹¹

Recognition of the vital role of logistics in winning the "People's War" is evident in the command structure established by the constitution. Logistics was elevated to a position of prominence within the North Vietnamese Ministry of Defense. The General Logistics Directorate, one of only three general directorates within North Vietnam's High Command of the Armed Forces, was given coequal status with the other directorates.¹² This resulted in unity of effort which inextricably linked the strategy and tactics in all military planning and operations, providing the means (logistics) to select achievable operational objectives. This command relationship continued throughout the war and was continually reevaluated and revamped in order to enhance operational success. Major changes were made to streamline the command structure in 1973-74 in recognition that an effective logistical system, which had always been the Achilles heel of the NVA, was the key to battlefield success.¹³

Another factor influencing the visibility of logistics was the advocacy of General Vo Nguyen Giap, NVN's Deputy Premier and Minister of National Defense/ Commander in Chief of the Army.¹⁴ Following his defeat of the French at Dien Bien Phu, General Giap acknowledged that logistics was the key contributor to his victory. Prior to the battle, both General Giap and General Navarre (French Commander-in-Chief) realized that the key was winning the logistic battle by building up stocks and supplies for their own force, and reducing the supply flow to his enemy.¹⁵ General Giap triumphed through superior organization, later acknowledging the role of logistics in his victory, stating, "a strong rear is always the decisive factor for victory in revolutionary war."¹⁶ Throughout his distinguished career, this noted military strategist continually advocated logistics as an essential ingredient of operational success.

Logistics Infrastructure

Understanding that an effective logistics system was the key to operational success, Hanoi's first priority was to provide a secure means of infiltrating manpower and materiel into South Vietnam. Three Lines of Communication (LOC) were used by Hanoi. Two were Sea Lines of Communication (SLOC), Infiltration by small boats into ports along the coast of Vietnam, principally through Haiphong Harbor, and via ocean-going vessels into Sihanoukville, Cambodia. These SLOCs were closed to North Vietnam by 1970, so the focus of this paper is on the third LOC - the land route known as the Ho Chi Minh Trail.

Evolution of the Ho Chi Minh Trail

The modern Ho Chi Minh Trail had its origin as a primitive series of trails used by the Viet Minh as a transportation network and communications link during the First Indochina War. It grew into an elaborate transportation network of roads, tunnels, and bunkers used by North Vietnam to infiltrate troops and materiel into South Vietnam, Laos, and Cambodia. It provided the insurgents with logistical support, sanctuary, and a series of intermediate support bases from which they could train, resupply, and prepare for future operations.

The old Viet Minh trails of the First Indochina War were put into operation again in 1959 when the North Vietnamese government embarked on its "Peoples' War" to reunify North and South Vietnam. NVA Major Vo Bam was given the mission of opening a supply and infiltration route leading to South Vietnam.¹⁷ Major Bam's unit, code number 559, was directed to open the route in the shortest possible time and told to maintain absolute secrecy. The route later known as the "Ho Chi Minh Trail," was officially opened on May 19, 1959 - Ho Chi Minh's birthday.¹⁸

The Ho Chi Minh Trail was a network of trails, tunnels, and riverways leading from the panhandle of North Vietnam southward along the upper slopes of the Chaine Annamitique, into eastern Laos and Cambodian and then into South Vietnam. Starting south of Hanoi, the main trail veered southwestward into Laos, with periodic side branches running east into South Vietnam. The main trail continued southward into eastern Cambodia and then emptied into South Vietnam near Da Lat.¹⁹ It was continuously improved throughout the war, growing from

a primitive trail which, in 1959, took six months to walk, from Hanoi to Da Lat. By 1974, the trip took only ten days by auto.²⁰

Significant improvements to the Trail started in mid-1964 when Hanoi realized "we had to move from the guerrilla phase into conventional war."²¹ Once Hanoi realized that "we would no longer carry supplies into the south on our backs and shoulders, like ants filling anthill"²² the decision was made to transform the Ho Chi Minh Trail into a mature logistical infrastructure. The transition to conventional warfare required a logistical system capable of transporting hundreds of thousands of tons of weapons, ammunition, food, and personnel into the south. The architect of the Trail, Colonel Dong Si Nguyen, spared no expense in constructing the modern trail. He dug underground barracks, hospitals, workshops, storage facilities and fuel depots as a precaution against air raids. He also recruited support personnel to assist the NVA in the field, to include traffic managers and medical personnel.²³ By 1966, sufficient improvements had been made to the trail to introduce trucks as a mode of transportation, but the trip was still arduous and slow, taking one month to transit.²⁴ Finally, in 1971, the trail provided a modern transportation system which enabled Hanoi to mount major operations. By late 1972, trail improvements had made the NVA "absolute masters" of both day and night operations.²⁵

Despite these significant improvements, the tactical employment of armor in the 1972 Easter Offensive illustrated that the logistics system was still the Achilles heel of the NVA, thus necessitating further improvements to the Trail in order to support North Vietnam's large, mobile, conventional army.²⁶ By 1974 the modernization was complete. The Trail had grown into a modern highway dotted with truck rest stops and service areas, oil tanks, machine shops, and other installations, all protected by hilltop anti-aircraft emplacements.²⁷ The all-weather roads could handle even tanks and other heavy equipment. Fuel pipelines were in place, a military telephone system was added, and the NVA had built 13 airfields within South Vietnam. In the base areas in Laos, Cambodia, and South Vietnam, depots were built or expanded, as were hospitals, repair facilities, and training centers.²⁸ The logistic capability represented by the trail following its modernization, enabled Hanoi to overrun the South with massive conventional

assaults. By December 1974, the Trail was "a network more than 20,000 kilometers long with extensions coiling into every hamlet and hearth in the south, coiling around the last days of Vietnam."²⁹

Operational Significance of the Trail

Vietnam has been described as a country "awash with weapons" thus, the image of the "barefoot guerrilla" as portrayed by the National Liberation Front (Viet Cong) was a grotesque parody of reality.³⁰ The NVA and VC main force units were extremely well supplied throughout the war. This image of the barefoot guerrilla represented operational deception at its finest, and signified a deliberate campaign by Hanoi to both downplay its role in the war and to conceal the strategic and operational significance of the Ho Chi Minh Trail. Hanoi denounced the trail as "fiction" and "myth," thus reinforcing an early trail slogan: "Absolute secrecy, absolute security."³¹ Hanoi had learned from North Korea's experience with the U.S. in 1950 and were determined to conceal the extent of North Vietnam's involvement in directing the war.

According to a State Department White Paper, "...the planners in Hanoi have tried desperately to conceal their hand."³² Hanoi deliberately encouraged the false impression that the aggression in the south was an indigenous, spontaneous rebellion against the Diem Government. Employment of the Trail to covertly transport manpower and materiel concealed the extent of Hanoi's involvement, thus providing the ultimate instrument to disguise the scope of North Vietnam's involvement. In the best tradition of Sun Tzu, Hanoi demonstrated that when fighting a war "its essence is deception."³³

This deception campaign was so successful, that the U.S. initially failed to realize the vital role the Trail played in supporting various military strategies. The U.S. was aware of the Trail's existence, but did not fully comprehend its operational significance, nor recognize the extent of improvements. By the time recognition dawned, the trail infrastructure was mature enough that the U.S. was unsuccessful in halting the flow of men and materiel except for very brief periods. This strategy of deception illustrates the value placed on the Trail by North Vietnam - recognition that transportation is frequently a limiting factor in logistics sustainment. Further, in

revolutionary wars, guerrillas traditionally do not defend terrain. They do, however, defend that which is critical to the movement's survival - usually its logistical base. The Ho Chi Minh Trail was vital in both these areas. It was the only viable transportation network from mid-1970 to the end of the war, and as its complexity grew from a simple network of jungle paths to a complex infrastructure, so did its importance for it provided not only a logistical base, but also a safe haven. Most significant, the Trail allowed North Vietnam to dictate the operational tempo of the war - choosing when to fight or withdraw to sanctuaries where the U.S. could not follow. The NVA believed the Trail controlled the rhythm of the war, deciding the time, place, and duration of battles; and determining how the war would be fought.³⁴

By 1971, the war was "essentially one of logistics,"³⁵ and the Ho Chi Minh Trail was the lifeline from NVN supporting the invasion. The turning point of the war was the combination of two events in Cambodia in April 1970. Prince Sihanouk was deposed by Lon Nol and President Nixon sent U.S. troops into Cambodia to seek out and destroy VC and NVA supply bases. These events closed the port of Sihanoukville to Hanoi, forcing it to rely entirely on the Ho Chi Minh Trail. In effect the Trail became the "jugular vein" for the NVA effort in South Vietnam.³⁶

The failure of the U.S. to initially realize the Ho Chi Minh Trail's operational significance was due only in part to Hanoi's deception. While the deception campaign was very effective, the myopic American view that this "primitive society" was no match for the overwhelming superiority of the U.S. military and its arsenal of high technology weaponry virtually guaranteed its success. This shortsighted attitude was manifested in our terminology, referring to the NVA and VC as "gooks, slant, zips" and to those living in Vietnam's vast tunnel infrastructure as "ghosts." It also explains the American response to the vast tunnel infrastructure associated with the Trail - that "technological inferiority, poverty, and stupidity somehow went together inside the black tunnels." This view was widely held in government by senior officials to include the Commander-in-Chief (President Johnson), who believed that "with the primitive society the Vietnamese had, they couldn't possibly prevail against the United States and its unlimited power."³⁷ Not only did this attitude reflect an overwhelming lack of understanding of the

Vietnamese people, but it also blinded American strategists to the significance of the tunnels - operational security. Linked with the Trail, the tunnels provided staging areas to pre-position arms and supplies, to assemble troops, to take cover from bombing attacks, and to literally disappear from view. The Trail provided the ultimate means to link mission, enemy, troops, terrain, and time available, providing the optimum environment for the METT-T framework.³⁸ It enabled the commander to fix the enemy, select advantageous terrain from which to attack, assemble and supply a decisive fighting force, using the LOC as the base from which to accomplish the mission. The Trail also provided a base for using METT-T as a defensive operation,³⁹ providing cover and concealment, advance siting of weapons, and operations over familiar terrain in an environment friendly to the insurgent.

The Trail infrastructure facilitated "feathering the nest in advance"⁴⁰ or as it is known today, logistics preparation of the battlefield. The Trail network protected the insurgent's logistical base and masked the logistical signature. The significance is best illustrated by the following story told by General Paul F. Gorman

"In the summer of 1971 I stood on a hill overlooking the Ashau Valley in northern I Corps with General Creighton Abrams. COMUSMACV has been prompted to visit me because of my insistence that the North Vietnamese were building a road through the jungle out of Laos pointed straight toward the city of Hue. The road was being advanced at such a pace, and trellised, ditched, and crowned with such lavish manpower as to establish it as a project of strategic significance. My medium artillery had blasted away enough of the camouflage to expose a segment of the road, which is what General Abram's came to see. When he asked me what it meant, I told him that it was designed to permit rapid forward positioning of towed artillery, and the swift introduction of truck-borne infantry and possibly tanks. He asked me when I thought such an attack might come. I replied that my estimate was Tet (lunar New Year) 1972. He agreed and remarked that American officers needed to understand that the NVN ran their force projection sequence precisely the inverse of our fire support, and finally our combat service support, they insinuated their logistic system first, even preparing the battlefield to the extent of engineering it, as we were witnessing. When the battlefield was fully prepared, and only then, would they introduce fire support. Maneuver forces would come last. Incidentally, we were proved wrong: the attack came not at Tet, but on Easter 1972. We had the rest of it right."⁴¹

Why the U.S. Failed to Defeat the NVA Logistical Network

The North Vietnamese were masters at turning the disadvantages of nature (weather and terrain), the lack of a mature infrastructure, lack of transport capability, and the lack of manufacturing capability to their advantage. Ingenuity and innovation were used to overcome these obstacles. For example, prior to the availability of trucks on the Trail, numerous modes of transport to include porters, sampans, bicycles, mules, and elephants were used to push, pull, and haul the necessary supplies. While unsophisticated, these solutions were effective, if not efficient, in sustaining the combat forces.

The role of people as "North Vietnam's foremost weapon of war," was continually stressed by Ho Chi Minh, emphasizing that the laborer and farmer were as important as the war fighter in winning the war.⁴² Men, women, and children were valued equally as a resource and played a vital role. Ho also adopted an ingenious approach, reinforcing the role of women in the war effort by discouraging love and families because that would take vital workers away from the workforce building the Trail.⁴³ General Giap confirmed and reinforced this approach following the war in a conversation with Stanley Karnow. He said:

"We were waging a peoples' war, *'a la maniere vietnamienne* - a total war in which every man, every woman, every unit, big or small, is sustained by a mobilized population. So America's sophisticated weapons, electronic devices and the rest were to no avail. Despite its military power, America misgauged the limits of its power. In war there are two factors - human beings and weapons. Ultimately, though human beings are the decisive factor. Human beings! Human beings!"⁴⁴

North Vietnam resorted to two methods to solve material problems caused by its lack of manufacturing capability, captured American weapons and supplies and external support. In the early 1960s, captured U.S. weapons were inadvertently provided to the guerrillas through the U.S. advisory mission in South Vietnam. Thousands of these weapons were dispensed by the Diem government to the Saigon territorials. The U.S. weapons were in turn appropriated by the VC, thus removing a major constraint on the expansion of guerrilla forces - the availability of

weapons.⁴⁵ The guerrillas also pilfered supplies from U.S. bases and retrieved weapons and ammunition left on the battlefield.⁴⁶ These sources of supply were critical, especially during the early stages of the war, for two reasons: First, captured weapons augmented the limited quantities of armaments which could be transported via the Trail prior to the introduction of trucks in 1966. Second, and more important, was the psychological implication of using captured weapons. Ho Chi Minh embraced this concept, believing that a guerrilla movement must learn to sustain itself with captured weapons in order to be a viable force.⁴⁷

The second source of supply used by North Vietnam to compensate for its lack of manufacturing capability was support provided by external sources. Most materiel needed for either the conventional or guerrilla phase of the war came from the Soviet Union and China.⁴⁸ North Vietnam was critically dependent on external support starting in 1954. Without this support, it could neither have survived nor sustained its war effort.⁴⁹ For political reasons, the U.S. did not interfere with this support, even though a basic tenet of counterinsurgency is to deny the enemy its logistical support. The U.S. did not directly confront the USSR or China regarding support to North Vietnam. This strategic decision was due primarily to the desire to avoid escalating the war. Consequently, the U.S. avoided overt military actions in Laos and Cambodia and interdiction of SLOCs until late in the war.⁵⁰ North Vietnam recognized this as a critical vulnerability of the U.S. following its analysis of the Korean Conflict and continued to exploit this U.S. vulnerability throughout the Vietnam War.

Another factor in the U.S. failure to halt the flow of external support was the difficulty of interdicting supplies on the Trail due to the natural masking of the Trail by the terrain and jungle cover. Nature provided both obstacles and inherent advantages on the Trail which were used to the insurgents advantage. The triple canopy jungle, tunnels, and natural terrain features made detection difficult on the Trail. Nature was augmented by the NVA who added 3,000 kilometers of plants and disguised tunnel openings to conceal areas which could normally be seen during day operations. This was further enhanced by the noise discipline and security requirements of the trail: "Walking without footprints, cooking without smoke, talking without sound."⁵¹

Interdiction of the Trail

The minimalist approach used by the North Vietnamese also made interdiction difficult. In contrast to the excessive U.S. base infrastructure and high tech approach, the combined NVA and VC requirement of 60 tons per day could easily be carried on 20 trucks. If hit, the trucks and materiel were easily replaced.⁵² A May 1967 Department of Defense memo confirmed this:

"It now appears that no combination of actions against the North short of destruction of the regime or occupation of North Vietnamese territory will physically reduce the flow of men and materiel below the relatively small amount needed by enemy forces to continue the war in the South."⁵³

This minimalist approach when linked with the seeming disadvantage of NVN's lack of manufacturing capability also negated the effectiveness of strategic bombing to attack the sources of supply and halt the Trail throughput into the south. America's reliance on air power and technology was viewed by Hanoi as both a failure to grasp Hanoi's war aims and a reflection of U.S. tactical inferiority on the battlefield.⁵⁴ Following the war General Giap confirmed this:

"Westmoreland was wrong to count on his superior firepower to grind us down. Our Soviet and Chinese comrades also failed to grasp our approach when they asked how many divisions we had in relation to the Americans, how we would cope with their technology, their artillery, their air attacks....America's sophisticated weapons, electronic devices and the rest were to no avail. Despite its military power, America misgauged the limits of its power."⁵⁵

The U.S. strategy of air interdiction was flawed for the reasons described by General Giap, but also from an historical perspective. North Vietnam did not possess the industrial development to justify strategic bombing. Nor was the bombing effective in view of the infiltration tactics and techniques used by North Vietnam, the dense nature of the terrain, and the highly redundant road-trail-waterway network in the area.⁵⁶ Despite this, any benefit which could have been realized through massive bombing of North Vietnam's supply lines was negated by its application as a political tool. Washington used bombing halts as a political tool to bring Hanoi to the peace table, a carrot and stick approach. Consequently, bombing pauses and shifts from one geographic area to another allowed North Vietnam to repair the bombed out bridges, rail lines,

and roads so supplies again flowed almost unrestricted via the Trail. More important, the bombing halts allowed Hanoi to compensate for organizational weaknesses which affected the operational tempo. The net effect of the bombing halts was to provide Hanoi with the time to reconstitute its forces and to fine tune its logistical support. As previously discussed, Hanoi continually implemented changes to modernize its logistic infrastructure and improve its command and control. North Vietnam understood that the operational tempo could not be maintained unless the art and science of logistics was understood and implemented effectively.

In summary, the bombing of North Vietnam and the Nixon-era incursions into Laos and Cambodia were "largely a bloody failure which caused the Trail to expand further to the west."⁵⁷ The bombing "generally had the effect of causing the North Vietnamese to live underground and disperse themselves, their supplies, electrical generators, political institutions, and military forces to thousands of secret, nature-hidden locations in the mountains, forests, and 'peaceful' countryside."⁵⁸ The Trail could not be cut, or could not be cut in any absolute sense, for any period of time sufficient to justify the cost in human lives and materiel.

Lessons learned

The lessons learned from Vietnam are particularly applicable to today since there is a high probability that the U.S. will continue to be involved in conflicts of a similar nature - confronting countries with an immature infrastructure, a politically unstable government, and other characteristics generally associated with Operations Other Than War (OOTW). A critical factor will always be the will of the people, both ours and the enemies, as it was in Vietnam. However, the focus of this paper is on the logistics lessons learned during the Vietnam War.

Logistics preparation of the battlefield. The NVA were masters at this as noted by General Gorman. If we understand the character of revolutionary war and "guerrilla logistics," we should be able to predict battles in advance. The insurgent's logistical signature is to push materiel forward in advance of the battle, and when necessary to physically prepare the site as the NVA did in the Ashau valley in 1971. Understanding this lesson will enable the U.S. to interdict the

insurgent's logistics pipeline early, and prevent the adversary from logistically preparing his battlefield. The key is in future conflict - the U.S. must separate the insurgent from its support while protecting its own logistical base.

Logistics preparation of the battlefield is even more vital today since it can reduce the "tooth to tail" ratio, allowing more effective employment of war fighters and the support team. In Vietnam, the U.S. effort to build bases camps which were too sophisticated for the austere environment, diverted valuable combat support resources away from supporting the war fighter. The combat engineers were used to build sidewalks at division headquarters while urgently needed to repair impassable roads leading to major ammunition supply points and fuel dumps. The result of this focus was to reduce the combat force to 20% of total U.S. forces in Vietnam.⁵⁹ In the era of downsizing, a tooth to tail ratio such as this cannot be tolerated, nor can diversion of soldiers from their primary combat support role be tolerated if the U.S. is to be an effective fighting force.

Technology: The U.S. tendency in Vietnam was to depend on "superior firepower & technology rather than on professional skill and soldierly qualities."⁶⁰ Strategists continually searched for, but never found, the technical "silver bullet" solution that would end the war quickly and with dramatic results. This high tech approach with the massive application of power was the siren-song of the U.S. in Vietnam. The lesson to be learned is that the technology must be appropriate to the environment and quick, decisive victories are difficult to achieve in modern warfare. The role of ingenuity and innovation cannot be overlooked. North Vietnam's ingenuity and low tech solutions, combined with the terrain of Vietnam, effectively blunted the impact of the U.S. bombing of the Ho Chi Minh Trail. We should have left Vietnam with a healthy respect for their "primitive" solutions - the simple but deadly weapons such as punji sticks, the tunnel infrastructure, the application of ingenious modes of transportation, the employment of innovative warning systems, such as elephants, to signal the advance of U.S. forces and bombers. Since Vietnam, we have encountered other lessons regarding technology. We have learned that the massive application of force and high technology solutions are not always appropriate. In

Grenada, we learned that standardization of equipment and terminology was critical. We continue to relearn from past mistakes. Again, in Somalia, the U.S. felt its presence and high tech approach to problem solving would prevail. It did not. We again insisted on using conventional means and high technology against an enemy who, in analogous terms, was very "street wise."

Unity of command / Unity of Effort. Unlike North Vietnam, the U.S. logistical support in South Vietnam was fragmented, particularly until 1965 when the 1st Logistical Command was established in Saigon.⁶¹ The U.S. also lacked unity of command. North Vietnam's organization provided both unity of command and unity of effort, enabling the selection of logistically supportable objectives. The key to operational success for the U.S. in future conflicts, whether OOTW or a conventional war, is to ensure logistics is embedded in all military planning and operations. It cannot be an afterthought as it has so often been in the past. When fully integrated into both the military planning and execution, piecemeal logistical fixes such as the Military Prepositioned Force will no longer be the required as a logistical quick fix. Operational logistics will then be a reality for U.S. forces rather than just a definition.⁶²

Political constraints: Political constraints such as those experienced in Vietnam are part of warfare. The political dictum to conduct strategic bombing was a misapplication of a military means, but it represents a likely scenario. It is incumbent upon the senior military leadership to be able to clearly communicate to the Commander-in-Chief the strategic, operational, and tactical implications of decisions regarding strategic bombing, target selection, and cross-border operations. It is also incumbent on the military to understand that in today's wars, all conflict involves both military and political aspects. It is equally as important for the civilian leadership to trust in the military's ability to execute the strategic goals, and to trust the military to manage the effort at the operational level. This was a lesson that was learned well as ably demonstrated during Desert Storm.

Historical Precedence: The United States repeated the mistakes made by France in the First Indochina War. The French at Dien Bien Phu hoped to cut Viet Minh supply lines into

Laos but were unsuccessful. The battle resulted in their defeat at the hands of General Giap. The U.S. should have analyzed the French defeat and realized that if the French were unable to sever the guerrilla's supply lines in 1954, there was little chance of accomplishing this years later. The U.S. should also have taken advantage of the opportunity to analyze its opponent and understand its motivation, strengths, and weaknesses. Instead, the U.S. confronted the same military and political leaders as the French had a decade before, and repeated her mistakes. Ho Chi Minh was consistent in his goals and beliefs throughout both the wars: "Nothing is more important than freedom and independence."

Conclusion:

Logistics was the key to operational success in the "Peoples' War" to reunify Vietnam. It drove the operational tempo of the war, with the Trail providing the logistics lifeline supporting the revolution. The Trail enabled North Vietnam to impose its will whenever and wherever they chose, taking the battle deep into South Vietnam, and also providing base areas and sanctuaries. The Trail became a "Hydra-headed monster," ⁶³ coiling around South Vietnam, thus providing the North Vietnamese war machine with the materiel and manpower it needed to win the war.

The United States responded, in the "American Way of War," with the overwhelming application of force. Despite its military power and technological superiority, the U.S. was never able to behead the monster and effectively interdict the Trail to deprive Hanoi of the means to achieve its strategic objective of a reunited Vietnam.

General Douglas MacArthur said, "The history of war provides that nine out of ten times an army has been destroyed because its supply lines have been cut." The U.S. was never able to cut North Vietnam's supply line. Thus, the Ho Chi Minh Trail, became North Vietnam's Trail to victory - its key to operational success.

End Notes

¹ Martin Van Creveld, Supplying War (New York: Cambridge University Press, 1977) p. 231-32. Emphasis added.

² Line of Communication (LOC): All routes (land, water, and air) that connect an operating military force with a base of operations and along which supplies and military forces move. LOC as used in this paper, refers to the land LOC (Ho Chi Minh Trail) unless otherwise indicated.

³ Harvey H. Smith and others, Area Handbook for North Vietnam (Washington, D.C.: U.S. Government Printing Office, 1967) p. 401.

⁴ Stanley Karnow, Vietnam: A history, 2nd ed. (New York: Penguin Books, 1991) p. 254.

⁵ Viet Cong used for the former Viet Minh. It was a derisive term which meant Vietnamese Communist. The VC called selves the Liberation Army.

⁶ Richard L. Stevens, The Trail (New York: Garland Publishing, Inc., 1993) pp. 58-62.

⁷ The "logistics tail" is the Combat Service Support provided to the combat force.

⁸ Andrew F. Krepenovich, The Army and Vietnam (Baltimore: Johns Hopkins Press, 1986) p. 9. In a conventional war, supplies and support are brought up from the rear in support of combat operations focused on the destruction of the enemy's armed forces. In an insurgency, supplies and support are at the front.

⁹ The "tooth to tail" ratio refers to the size of the combat force (tooth) vice the support structure (logistics tail). The insurgent's logistical infrastructure is not as labor intensive as that of a traditional organization. According to one source (Stevens, p. 79), of approximately 500,000 U.S. troops in Vietnam in 1967, only 20% of were involved in combat.

¹⁰ Hqtrs, U.S. Marine Corps, Campaigning, FMFM 1-1 (Washington, 1990) p. 78.

¹¹ Smith, p. 403.

¹² Smith, p. 403-407 (Note: The General Logistics Directorate, formerly known as the Rear Services Directorate, was responsible for supervision of procurement, supply, transportation and operation of medical services).

¹³ Sir Julian Thompson, The Lifeblood of War: Logistics in Armed Conflict (London: Brassey's, 1991) p. 214-17. Following the Easter Offensive of 1972, General Giap realized that introduction of armor on the battlefield necessitated changes to the logistics system which was

not organized to conduct mobile warfare with its high ammunition and fuel expenditure rates. Major improvements to the increased the Trail's logistical capability. Changes to the command structure made in conjunction with the Trail's improvement, improved command and control. A major reorganization was undertaken which grouped the NVA divisions into four corps.

¹⁴ Smith, p. 408.

¹⁵ Sir Julian Thompson, p. 171.

¹⁶ General Vo Nguyen Giap, People's War, People's Army (Hanoi: Foreign Language Publishing House, 1961) p. 184.

¹⁷ Michael R. Conroy, "Trials Along the Trail." Vietnam (October 1993) p. 26.

¹⁸ Stevens, p. 37- 38. Major Bam in a later interview stated that the unit's code number 559 stood for the month and year the trail was opened, May 1959.

¹⁹ "Ho Chi Minh Trail," Encyclopedia Britannica, p. 955.

²⁰ Karnow, 676. General Tran Van Tra said the trail in October 1974 was a "far cry" from the primitive web of paths that he had first descended more than a decade earlier. It was now a super highway allowing the trip from Hanoi to Da Lat to be made by automobile in ten days.

²¹ Ibid, p. 348.

²² Ibid, p. 348.

²³ Ibid, p. 348.

²⁴ The Ho Chi Minh Trail, p 14.

²⁵ Stevens, p. 109. Over 3,000 kilometers of the trail were camouflaged to provide cover for day operations. Antiaircraft defenses, and camouflage enable convoys to operate 24 hours a day.

²⁶ Thompson, p. 214-17. Following the Easter Offensive of 1972, NVN recognized that logistics was still the Achilles heel of the NVA. Consequently, work began to further modernize the Trail -turning it into an all-weather road with fuel pipelines linking North and South Vietnam. The NVA strung 20,000 kilometers of lines in order to install a military telephone system in South Vietnam, and built 13 airfields within South Vietnam. Anti-aircraft defense systems were also emplaced along the trail. This modernization of the trail was accompanied by changes to NVA command and control (addressed in the "Role of Logistics in North Vietnam's Military" section of my paper).

²⁷ Karnow, p. 676. By 1974, 2 million men had transited trail and the NVA had transported 22 times more material via the trail than in 1966 when trucks were first used.

²⁸ Thompson, p. 216-17.

²⁹ Stevens, p. 117.

³⁰ Eric Bergerud, The Dynamics of Defeat: The Vietnam War in Hau Nghia Province (Boulder: Westview Press, 1991) p. 95-96.

³¹ Karnow, p. 253 and 343.

³² "Aggression From The North", State Department White Paper On Vietnam, (Department of State Bulletin, March 22, 1965). The White Paper reinforced Hanoi's role in directing the war. "Under Hanoi's overall direction the Communists have established an extensive machine for carrying on the war within South Vietnam. The focal point is the Central Office for South Vietnam with its political and military subsections and other specialized agencies. A subordinate part of this Central Office is the Liberation Front for South Vietnam. The front was formed at Hanoi's order in 1960. Its principle function is to influence opinion abroad and to create the false impression that the aggression in South Vietnam is an indigenous rebellion against the established Government."

³³ Professor Arthur Waldron, "Sun Tzu's Art of War," Strategy and Policy Lecture, Naval War College, November 21, 1994.

³⁴ Stevens, p. 214.

³⁵ Cao Van Vien, "Vietnam: What Next? The Strategy of Isolation," Military Review April 1972: p. 22-23.

³⁶ Palmer, p. 98-104.

³⁷ Tom Magold and John Penycate, The Tunnels of Cu-Chi (New York: Random House, 1985) p. 200-01. President Johnson's view as recalled by Senator William Fulbright, then chairman of the Senate Foreign Relations Committee.

³⁸ Hqtrs, Department of the Army, "Operations," FM 100-5, June 1993 ed.: p. 2-4. METT-T as described in the sentence preceding is Mission, enemy, troops, terrain, and time available.

³⁹ Ibid, p. 6-19.

⁴⁰ Bergerud, p. 96. Revolutionary warfare is characterized by battles of limited duration with supplies pushed forward preceeding the battle.

⁴¹ General Paul F. Gorman, "Low Intensity Conflict: Not Fulda, Not Kola," FC 100-30, Low Intensity Conflict (Fort Leavenworth, KS, December 1984), p. 68-69.

⁴² Jon M. Van Dyke, North Vietnam's Strategy For Survival (Palo Alto, CA: Pacific Books, 1972), p. 67 and 89.

⁴³ Ibid, p. 98.

⁴⁴ Karnow, p. 20-21.

⁴⁵ Sheehan, Neil. A Bright Shining Lie (New York: Random House, 1988), p. 99-101. Concern expressed by Major Paul Vann: American advisors had not foreseen this problem prior to commencing the program.

⁴⁶ Ronald E. Yates, "U.S. Vets Return to Vietnam and Find Forgiveness," Chicago Tribune 1965. The availability of materiel is illustrated by the following: "\$5 billion in U.S. military hardware left behind in 1975, including 90,000 pistols, 790,000 M-16 rifles, 50,000 M-60 machine guns and 47,000 M-79 grenade launchers."

⁴⁷ Sheehan, p. 312.

⁴⁸ Van Dyke, pp. 213, and 224-25. Weapons and equipment supplied by the USSR included: AK-47 automatic weapons, surface to air missiles, rockets, heavy mortars, flame throwers, radar installations, MIGs, PT-76 tanks, helicopters, Polish dump trucks, and construction equipment. In 1969, Soviet support of munitions was decreased and industrial machinery was increase. In addition, they provided food, petroleum products and training. China provided ammunition, small arms, trucks, and railroad boxcars in addition to rice and grain. China also provided between 30,000-50,000 support troops to help repair the transportation system and antiaircraft defenses in NVN.

⁴⁹ Richard A. Hunt and Richard H. Shultz, Jr., Lessons From An Unconventional War (New York: Pergamon Press, 1982) p. 121. The authors state that Hanoi gave out few statistics, but the data provided is a reasonable extrapolation. From 1954-1964, Hanoi received approximately \$100 million annually or 20% of its annual budget from the USSR and China. With escalation of the conflict to a conventional military invasion of South Vietnam in late 1964, external support to Hanoi increased significantly. It is estimated that annual contributions from external sources amounted to \$1 billion per year, with a cumulative total of approximately \$20 billion provided by Hanoi's allies.

⁵⁰ Mark Clodfelter, The Limits of Air Power: The American Bombing of North Vietnam (New York: The Free Press, 1989) p. 118. U.S. did not attack external supply sources until 1972 when President Nixon order the mining of Haiphong Harbor and bombing of overland supply routes from China to cut off the flow of military supplies to Hanoi.

⁵¹ Stevens, p. 41.

⁵² Ibid, p. 176.

⁵³ Andrew J. Rotter, Light at the End of the Tunnel, A Vietnam Anthology (New York: St. Martin's Press, 1991) p. 172. Chapter: "A Dissenter in the Government," by George Ball.

⁵⁴ John R. Boettinger, Vietnam and American Foreign Policy (Boston: D.C. Heath and Company, 1968) p. 53.

⁵⁵ Karnow, p. 20-21.

⁵⁶ General Bruce Palmer, Jr., The 25-Year War (Lexington: University Press of Kentucky, 1984), p.34. General Palmer states: "Historically, strategic bombing has achieved only limited success against even modern, industrialized states." He pointed out that the USAF and USMC were strong proponents of strategic bombing, but the U.S. Army opposed it from both a historical perspective and due to the tactics used by the NVA & VC. The U.S. Navy shared the Army's reservations regarding interdicting the SLOCs.

⁵⁷ Stevens, p. xxvii

⁵⁸ Ibid, p. xxviii.

⁵⁹ Palmer, 70-71.

⁶⁰ Ibid, p. 205.

⁶¹ Ibid, p. 67-68.

⁶² Operational logistics is defined Joint Pub 4-0 as: "the art of applying the military resources available to operating forces to achieve national military objectives in a theater or area of operations or to facilitate the accomplishment of assigned missions in a military region, theater, or campaign."

⁶³ Stevens, p. 79.

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